DOCUMENT RESUME

ED 028 624 EF 003 116

By-Loeffler, Margaret Howard

The Prepared Environment and Its Relationship to Learning.

Pub Date 68
Note-31p.
EDRS Price MF-$0.25 HC-$1.65
Descriptors-Carrels, Classroom Design, *Design Needs, *Early Childhood Education, *Educational Equipment, Furniture Design, Individual Needs, *Learning, Playgrounds, Play Therapy, School Design, *School Environment

A proposal to carefully examine some current thinking on early learning and attempts to project their implications into the design of a unique learning facility that would offer a supportive and stimulating environment for young children two to six years of age, providing for their individual needs and differences. The concepts examined were selected because it was felt that within their broad framework could be included a wide and varied range of subject matter that seemed to be relevant to early learning and facility design. The ideas presented should stimulate the thinking of all those concerned with the education of the very young. Included are sections on--(1) dependence, independence, interdependence, (2) early stimulation and learning, (3) manageable complexity, (4) the play of young children, and (5) the role of the teacher. (RK)

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by

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THE PREPARED ENVIRONMENT

AND ITS RELATIONSHIP TO LEARNING

by

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PUBLISHED BY THE TRUSTEES OF CASADY SCHOOL
UNDER A GRANT FROM EDUCATIONAL FACILITIES LABORATORIES

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FIRST PRINTING, 1967

SECOND PRINTING, 1968

INTRODUCTION

The term "prepared environment" was first used by Dr. Maria Montessori, an Italian physician and educator, to describe the carefully planned learning atmosphere for young children three to six years of age designed by her for the children of the San Lorenzo district of Rome more than sixty years ago. The term seems even more appropriate today in attempting to describe the essential elements of a carefully planned contemporary learning environment for young children many of whom may come, as did Montessori's original children, from disadvantaged backgrounds.

It is not the purpose of this book, however, to confine our thinking only to those young children with environmental deficits. Indeed it is to be hoped that the intense interest now focused on the disadvantaged child will not obscure the implications of current research for the early learning experiences of all children, including those on the middle and upper end of the socio-economic-intellectual continuum. Any implication that a uniformity of optimum development exists among young middle and upper class children in our society is a myth that would be quickly dispelled by intimate contact with any representative group. Traditional nursery school settings for these children have tended to emulate the middle class home environment. Perhaps there is a need to question the levels of stimulation for optimal intellectual and emotional development offered to many young children by these traditional settings and to propose a new and more challenging school environment that will enable the more advantaged youngsters to maximize their cognitive potentials.

As Jerome Bruner states in *The Process of Education*,"One thing seems clear: if all students are helped to a full utilization of their intellectual powers, we will have a better chance of surviving as a democracy in an age of enormous technological and social complexity." Not only must American education find ways of increasing the levels of motivation and achievement in those children from disadvantaged backgrounds; it must also become aware that our expanding society has an ever-increasing responsibility and need to develop its most gifted members to their highest levels of creativity. If the years from three to six are as important to future intellectual and emotional development as contemporary research leads us to believe, these years may be the most crucial ones of all to each of our citizens educationally speaking.

This book proposes to carefully examine some current thinking on early learning and attempts to project their implications into the design of a unique learning facility that would offer a supportive and stimulating environment for young children two to six years of age, providing for their individual needs and differences. The concepts that we have chosen to examine were selected because it was felt that within their broad framework could be included a wide and varied range of subject matter that seemed to be relevant to early learning and facility design.

We hope that the ideas presented in this book will prove to be provocative enough to stimulate the thinking of all those concerned with the education of the very young. The funds for this project were provided under a grant by the Educational Facilities Laboratories to Casady School's Primary Division enabling the director and members of the staff to confer with many persons preparatory to the writing of this book.

ACKNOWLEDGEMENTS

The Casady staff conferred with the following persons during their study and wish to express their sincere appreciation to each of them for the insights which they provided:

DR. JEROME BRUNER, *Center for Cognitive Studies*
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MISS MARY JOHNSON AND MR. ROBERT NEWMAN, *University of Chicago Laboratory Schools*

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DEPENDENCE, INDEPENDENCE, INTERDEPENDENCE

EDUCATIONAL RATIONALE

The child between the ages of two and six years is expected to move from the complete dependency and ego-centrism of infancy into a relationship of interdependence as a member of a community of family and peers. During the transitional period between the two attitudes of extreme dependence and emerging interdependence lies a crucial developmental stage for the child which might be called the first stage of independence. The transition itself is the result of many learning experiences. The kind and quality of these learning experiences is extremely important to the child in the development of a positive concept of himself and of his present and future capabilities.

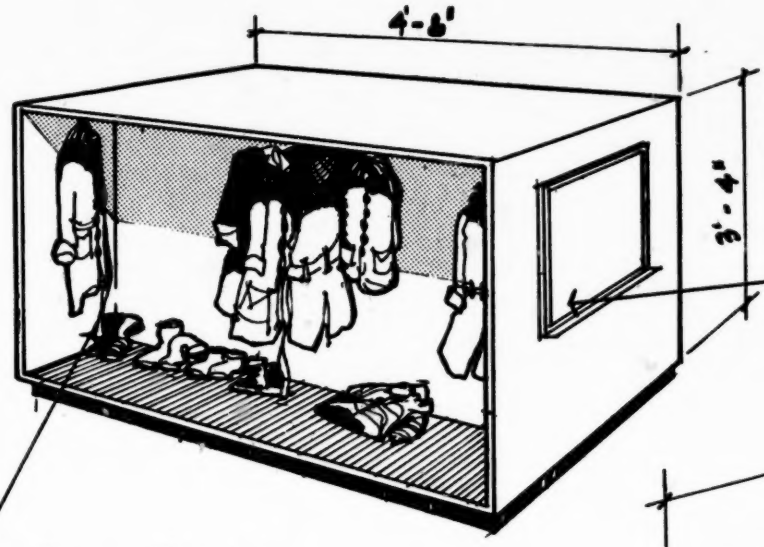
According to Erikson, the child must first develop a basic sense of trust toward the world and toward the people around him. This basic trust is primarily established during the first two years of his life through the relationships with the important persons in his environment, especially his parents and/or other caretakers. If through these early experiences he learns to trust his own small piece of the world, he begins to evidence a strong desire for independence and personal autonomy between the third and fifth years, the time when he can be propitiously introduced into a prepared learning environment.

Such a school for the very young can help the child in several important ways during this period of major personality development. It can provide an atmosphere of security enabling the young child to extend his sense of trust to a wider segment of the world or perhaps encouraging its initial development if his earlier experiences have been negative. The school can also encourage the child to develop a sense of autonomy and independence within the limits of a freedom with which he can cope. It is essential that the school provide an atmosphere in which the young child has the courage to be himself. This does not imply an overpermissiveness toward the child and his activities. Instead, it implies a basic trust in the child's desire to be independent, seeing in his insistence on doing things for himself a sign of positive growth rather than a symbol of rebellion against adult authority.

Often the parents of the young child find it difficult to tolerate this developing independence since they still view the child as an extension of themselves rather than as an emerging autonomous individual. The school for the very young should help the parents appreciate and understand the desirability of this growing independence in the child through parent education classes and conferences. By providing the child with an optimum environment for independent action the school can help both parents and child move through this important transitional period with less conflict.

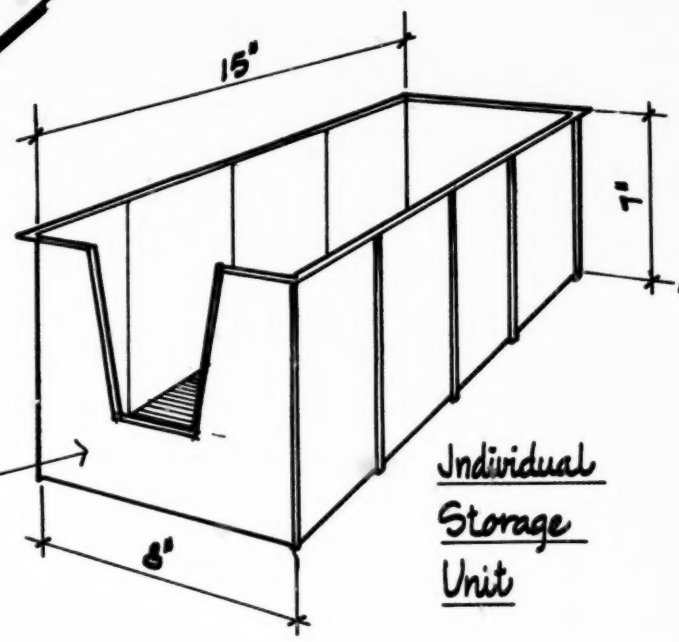
To allow the child this opportunity for growth the school must have a deep respect for the young child as an individual. The persons involved must be willing to "take the trouble" to allow the child to become self-sufficient, for there is no doubt that it does require more planning and patience to encourage the child in this independence of effort and emotional growth than to do things for him quickly and skillfully while hobbling his initiative in the tender trap of overdependence.

An honest and objective appraisal of many kindergarten and nursery school programs may disclose that a too-early emphasis on group oriented activities is premature for most young children and may deprive them of the opportunity to develop the vital ego strength upon which true socialization must be built. Association with his peers in a comfortable non-contrived relationship does aid the child in the development of his ego strength by requiring him to test his evolving concepts against those of his peer group in spontaneous encounters and by enabling him to discriminate his Davidness from Bill's Billness, and his maleness from Mary's femaleness.



Rear Elevation

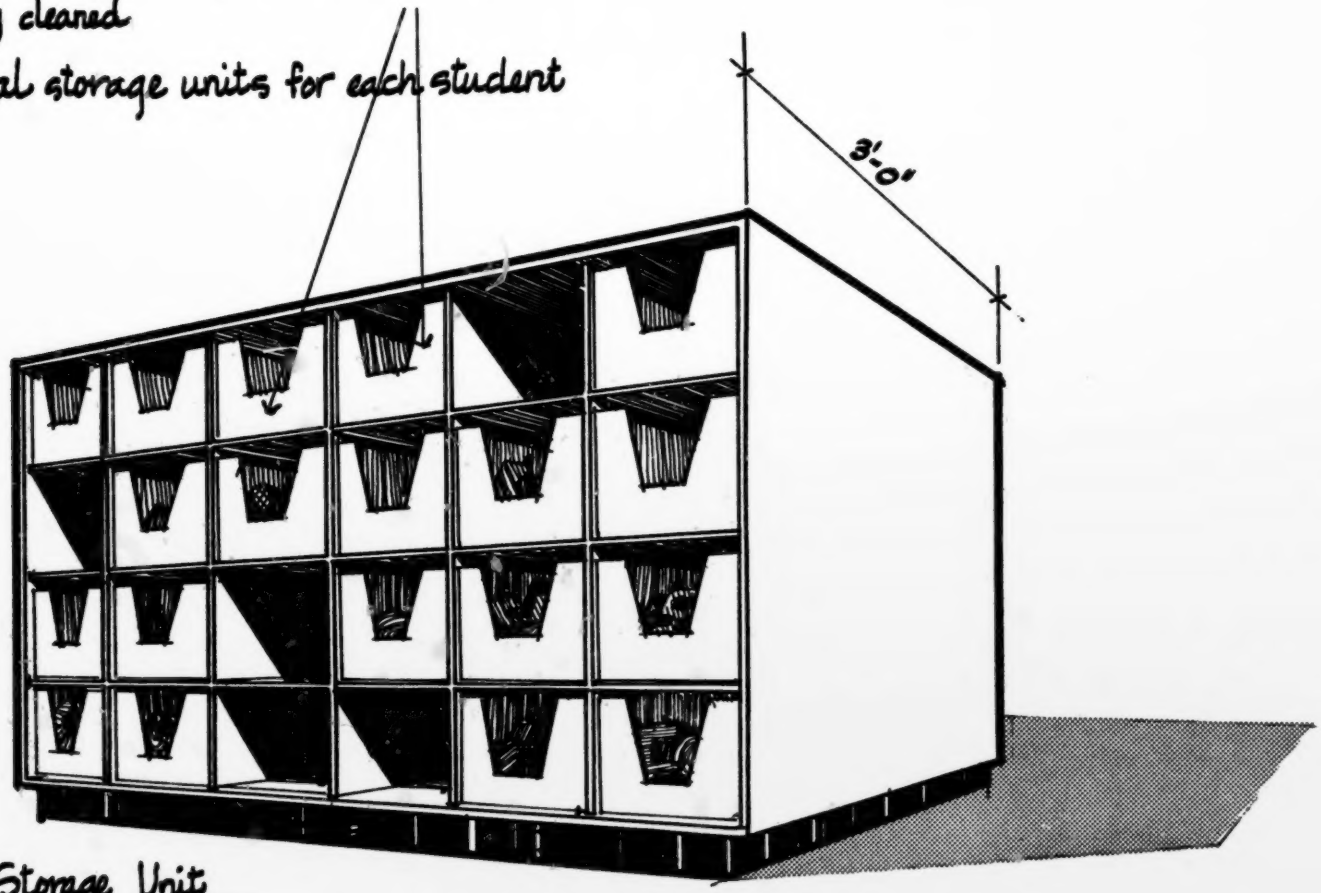
Coat closet adequate for 24 children located on rear side of storage unit



Individual Storage Unit

Soft plastic containers - orginally designed as vegetable bins make ideal storage for young children's possessions as they are light in weight, non-breakable and easily cleaned

Individual storage units for each student



lunch pail storage this side

Student Storage Unit

The wise teacher of the young will understand the importance of this kind of spontaneous, child-initiated, socialization while understanding the young child's primary need for self-differentiation.

ARCHITECTURAL INTERPRETATIONS

The carefully prepared learning environment can encourage the young child to move freely and easily between individual activities and small group activities as his needs and inclinations demand. The physical environment should subtly aid this important mobility as well as enabling the child to become self-sufficient and gradually less dependent on the adult for many of his needs.

The facility should be structured to encourage responsibility and a sense of pride in the child. These things can come about by helping the child master skills of independence such as buttoning, zipping, pouring, mopping, folding, scrubbing, and other simple tasks which make him less dependent on the adult and more able to exert control over his own actions and behavior. Easily mopped floors, easily carried furniture, accessible toilet and drinking facilities, and graphically designated storage places all help the child to become more self-reliant and free the teacher from many monitoring tasks.

This growing sense of self-sufficiency does not mean that the child is alienated from the adults in his environment. Rather, the young child by attaining a degree of autonomy and independence is provided with an opportunity to grow in his relationships with adults, establishing a less egocentric and more personally satisfying relationship with them.

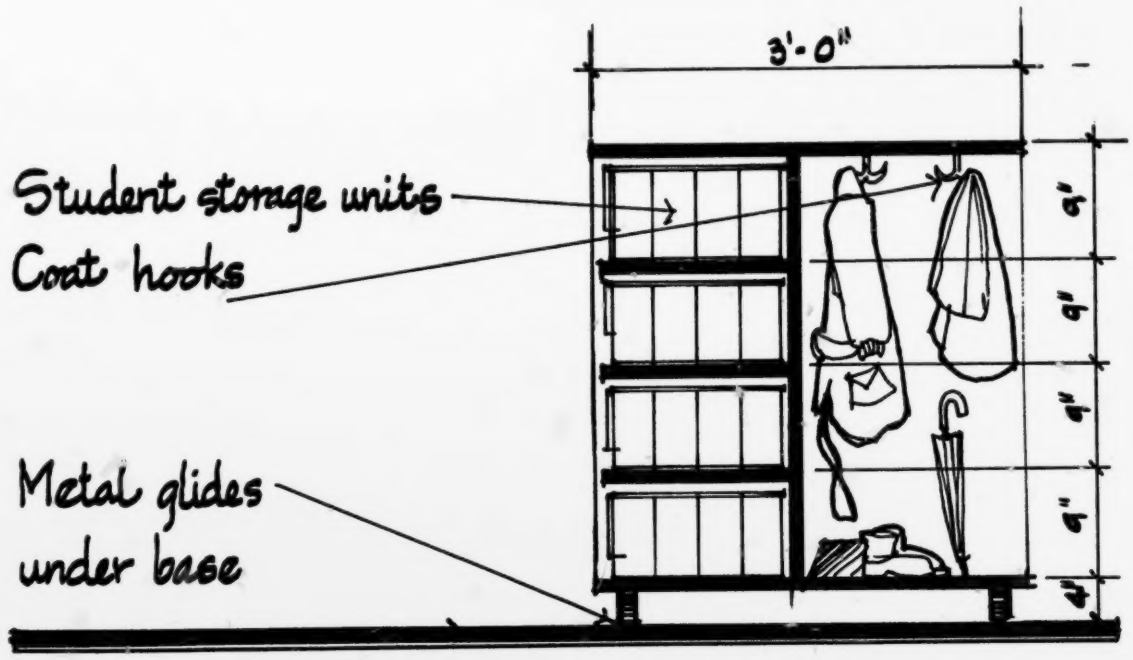
Although the child in such a school will not have an individual desk, it is important that individual storage be provided for such items as a personalized name stamp, a comb, the child's own work, and other miscellaneous items which are the child's own property rather than things to be shared with the school community. This sense of personal property, while important to all young children, gains an added value for those children who have few personal possessions outside the school. Small tote trays labelled with the child's name and stored in low accessible cabinets would be useful for this purpose. These trays could also be stored in individual lockers or cubbies.

If meals are served at the school, serving facilities should be organized so that the child can learn to serve himself and others, developing skills and independence in this important area also.

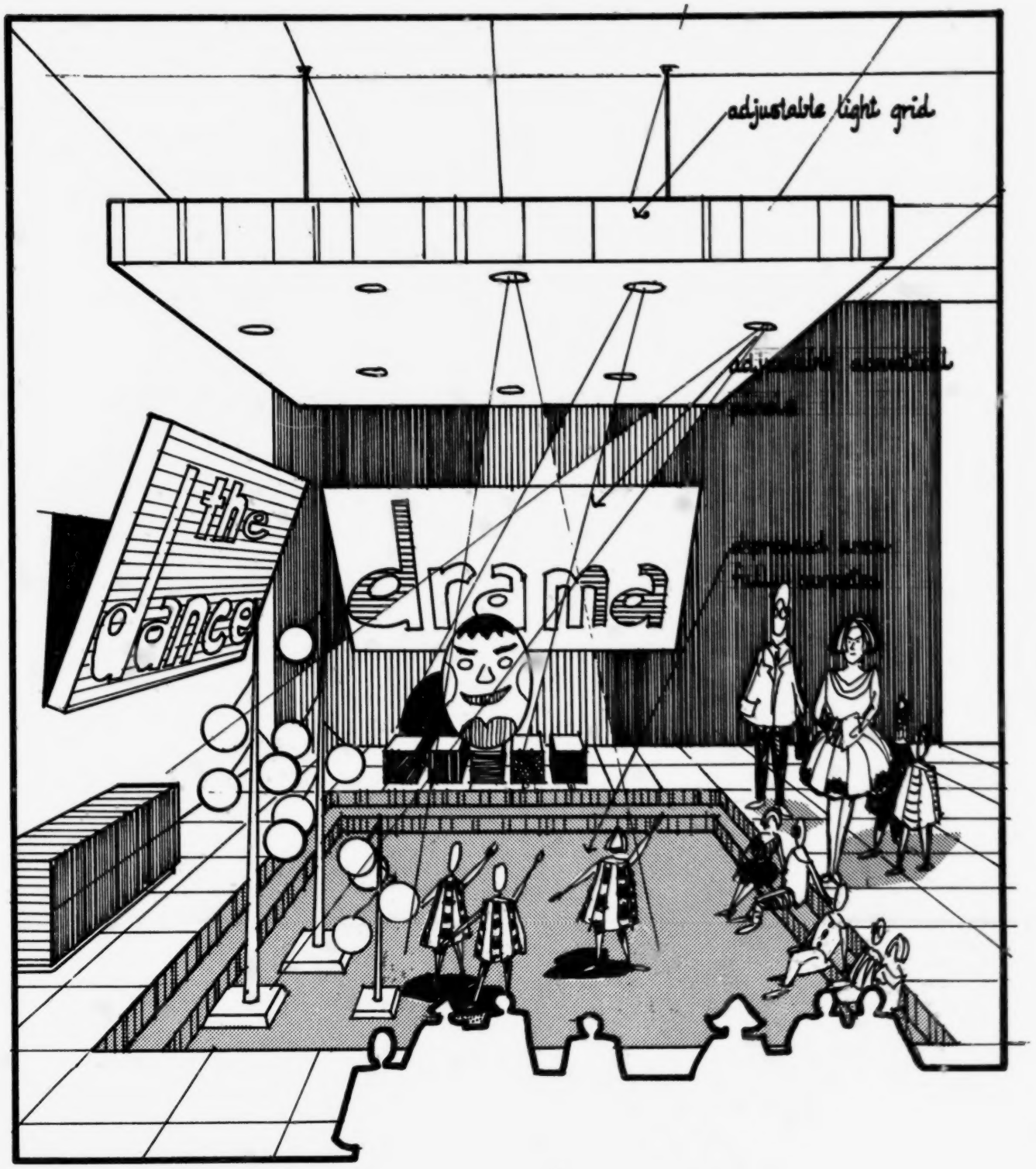
The furniture in a school for the very young needs to be as flexible and unique as the building itself. Small stepstools to stand on, to sit on, or to use as a low table while one is sitting on the floor are a practical possibility for the youngest children. These could be tucked away in a child's locker or cubby when not in use to give an uncluttered floor area.

Soft comfortable furniture such as hassocks and long floor cushions should be provided in the quiet corners so that a tired or temporarily unhappy child can stretch out and rest or merely have a chance to meditate away from the noisier activities of his classmates. Of course, if all the children are expected to nap at school, special cots or cushions which can be stacked for storing should be easily available.

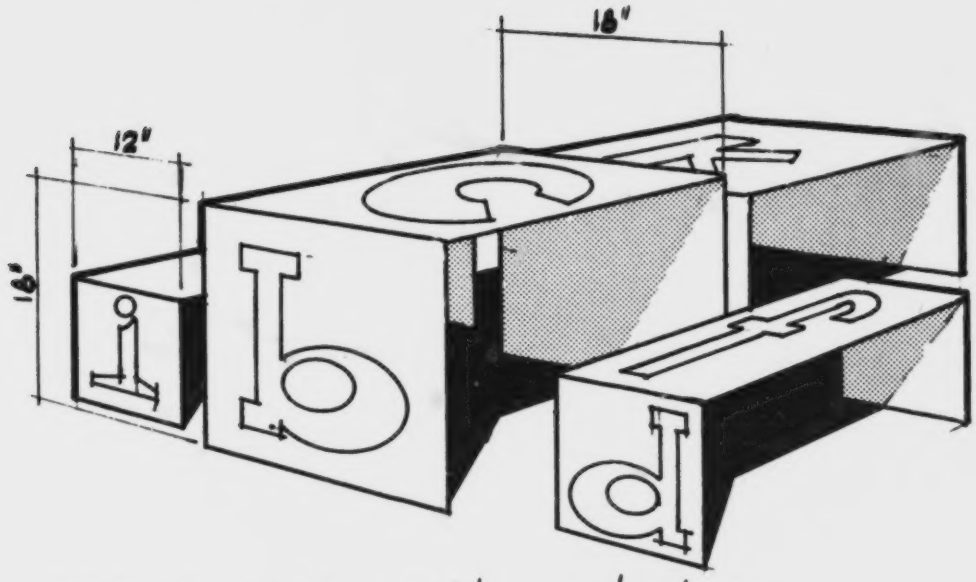
Mirrors placed at the child's eye level can be used for many activities — trying on new expressions and new roles, seeing how one's mouth looks when saying a new word or mastering a problem sound, admiring one's freshly scrubbed face or neatly



Section through storage unit



Informal Theater and Conversation Area



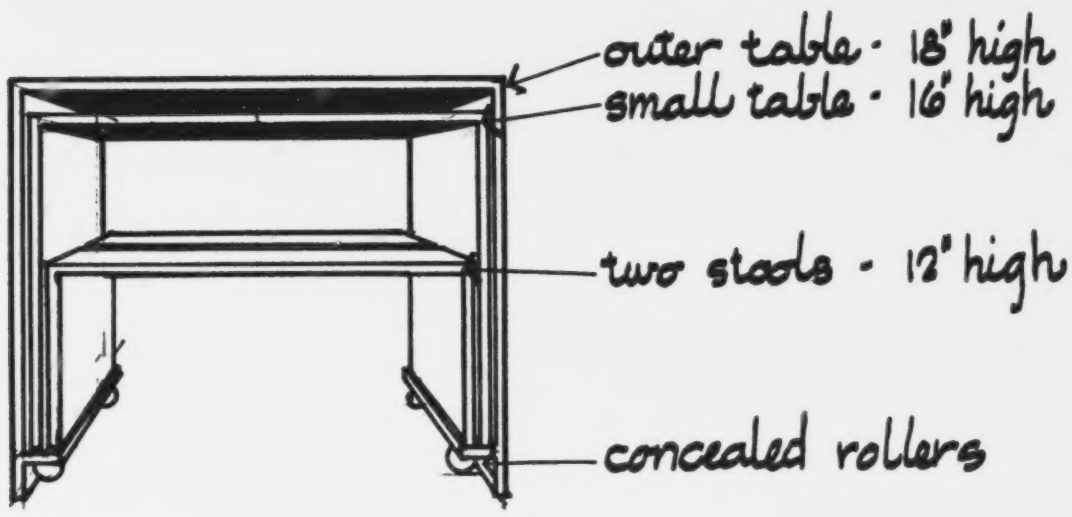
Set of nesting tables and chairs

combed hair — these are but a few possibilities. Flexible "mirrors" in rubber frames which can become either convex or concave reflective surfaces add to the child's intuitive knowledge of the physical world.

Two floor levels with a few shallow steps between levels can provide a fine stair climbing experience as well as providing efficient seating space for young children if the stairs and the lower level are carpeted. The carpeted area also provides a fine place for the give-and-take discussions of children's ideas so necessary to the intellectual development of the very young. A strategically placed ceiling spotlight can make a "theatre-in-the-round" come alive in a two-level room with the audience sitting on the steps that join the levels.

Nesting tables in three heights, color coded so that the children might easily combine them for group work or eating yet separate them for individual activities could be stored easily under counters along the wall. These counters could be designed to hold the many pieces of concrete apparatus which the children use as well as to hold such items as typewriters and small teaching machines for testing simple associations or concepts.

The school for the very young should be thoughtfully planned to provide in every way possible a comfortable and supportive environment for growth in independent action and personal responsibility.



EARLY STIMULATION AND LEARNING

EDUCATIONAL RATIONALE

A great deal of recent evidence points to the importance of early stimulation and experience as vital prerequisites to optimum development, both cognitive and social, in the human organism. Although the child's inheritance does set limits on his ultimate potential, it does not guarantee in any way that this potential in capacity will be reached. The achievement of the child's genotypic potential appears to be a function of a continuous dynamic interaction between the developing child and his environment.

Harlow calls this interaction "learning to learn" and postulates the formation of "learning sets" through early experiences. Hebb sees the effects of this early interaction in more neurophysiological terms as expressed in his theoretical formulations of cell assemblies and phase sequences.

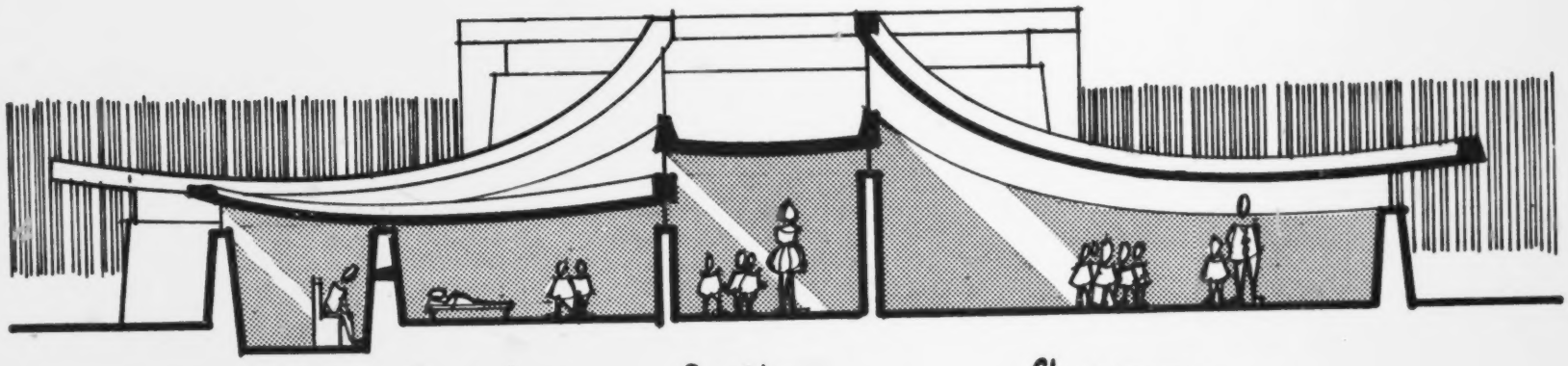
Whatever theoretical explanation we choose to use to describe this crucial early interaction between the child and his environment, the cognitive and motivational pathology that results from a lack of such early stimulation has been spelled out for us through many sources.

Dennis' reports of the orphanage children in Tehran, 60% of whom were not sitting up alone at two years of age and 85% of whom were not walking at four years of age due to an extreme lack of variety in visual and auditory input (they were kept in hygienically clean, soundproof cubicles with no opportunity to observe other p e r s o n s except when their physical needs were being attended to) is a dramatic example of the results of extreme deprivation of early stimulation. The recent recognition of the role of environmental deficits in the educational failures of our own disadvantaged American children further dramatizes the critical importance of early learning experience. The possibility of discovering key experiences that would provide optimum stimulation to the developing organism in infancy and early childhood seems within the realm of possibility.

Of perhaps even more relevance to those interested in the role of early learning is the theory advanced by Dr. J. McV. Hunt and others that the development of an "intrinsic motivation for learning" grows out of the experiences of the child's early years. Thus not only his ability to learn but his desire to learn as well, as evidenced by such attitudes as curiosity, desire for exploration, and desire for experimentation, are set to a large degree by the experiences that he has had before the age of six. As Jean Piaget, the Swiss psychologist, has aptly phrased it, "The more a child has seen and heard, the more he wants to see and hear," gives us some clues to the kind of optimal learning environment that a school for the very young should provide.

The school for young children should encompass a tempting array of apparatus for the young child to examine, to manipulate, and to experiment upon. To quote further from Jean Piaget's remarks at a recent American conference: "Experience is always necessary for intellectual development. But I fear that we may fall into the illusion that being submitted to an experience (a demonstration) is sufficient for a subject to disengage the structure involved. But more than this is required. The subject must be active, must transform things and find the structure of his own actions on the objects."

A school for young children should entice the child to learn through carefully presented stimuli that beckon the child to explore, to question, and to assimilate knowledge and understanding through his own experimentation. A wide range of manipulative material exists today for the young child to use in building his own intuitive knowledge of the world. As Martin Mayer says in a recent magazine article on the "new education," "The emphasis in all the new programs (education) is on discovery — the child is not told what he has to know, he finds it out for himself . . . . The materials are designed to *force* him to discover and their quality is judged by their efficiency in pushing him to a conclusion that is a useful part of the discipline under study. His method of coming to this conclusion, however, is his own business — indeed what keeps



Typical Section through School

Ceiling heights are very important in controlling the level of activity of young children. High ceilings are advantageous in areas of activity while low ceilings encourage rest and quiet.

the reformers at work is this fascination with the variety of fruitful new ways children find to approach old problems." A wealth of new and old educational hardware, such as adapted versions of Montessori's didactic materials, should prove productive in the contemporary prepared environment.

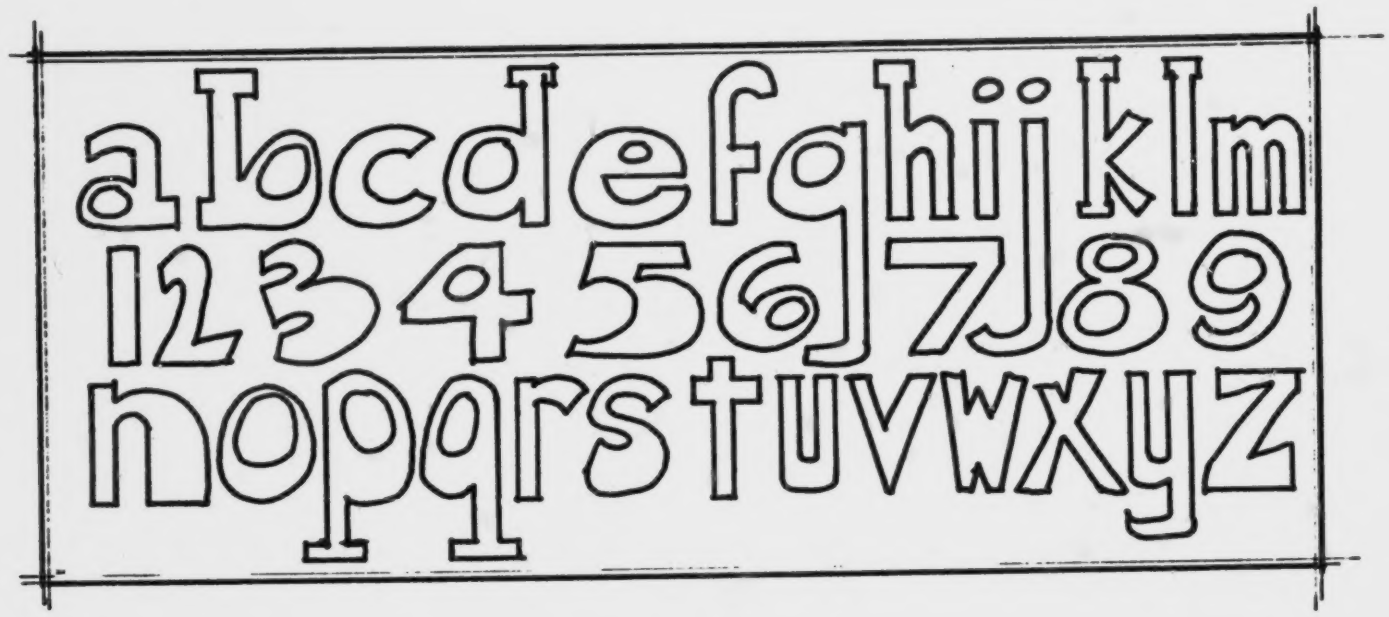
ARCHITECTURAL INTERPRETATIONS

The building itself can play a role in the learning process. Ideally it should incorporate a variety of geometric forms into the child's environment. Although the exterior shape of the building itself may be a conventional rectangle, many functional opportunities exist to incorporate a variety of other shapes into the design. Circles, triangles, rhombi, and hexagons can be introduced into the environment through skylights, clerestories, bubbles, windows, and in design on overhangs, fascia, lattices and sunshades. Many of these architectural features will lead to interesting shadow patterns on floors, walls, and courts if the building is carefully conceived.

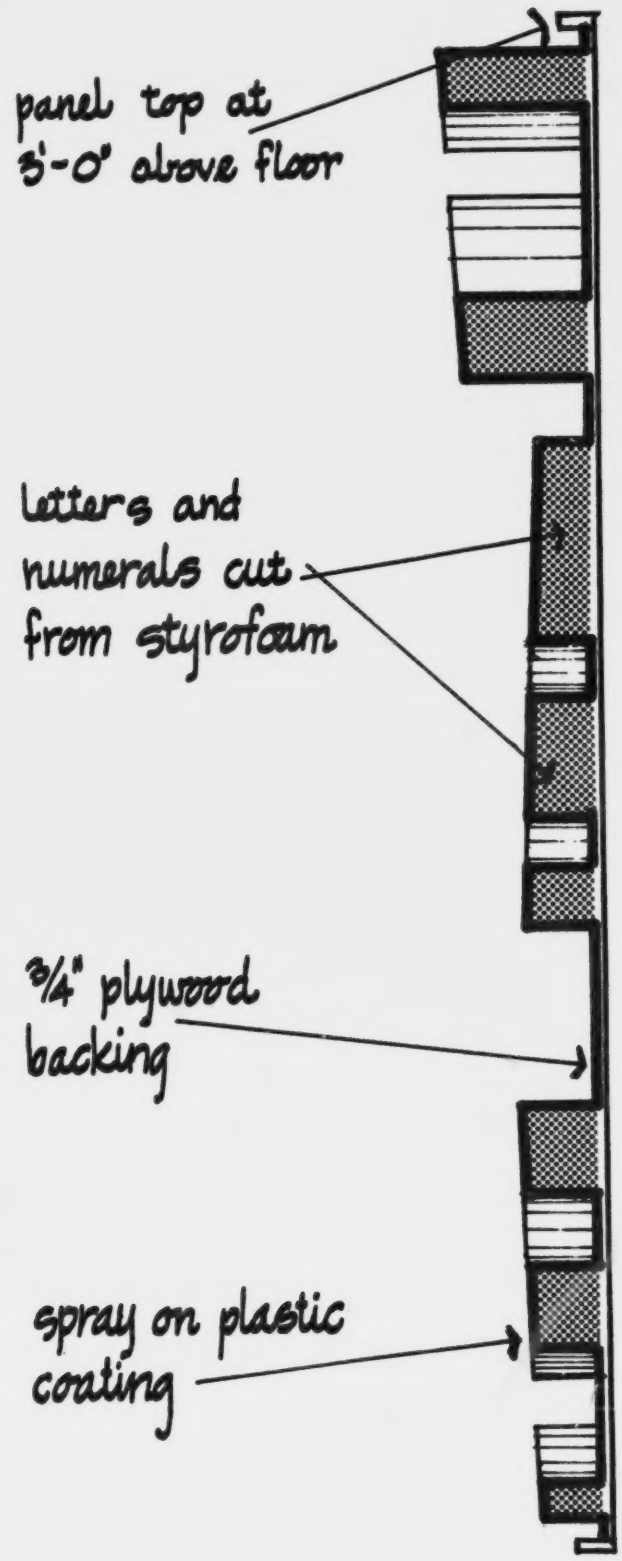
Color, proportion, and texture should all be carefully considered for intellectual-psychological as well as aesthetic reasons in planning a school for very young children. "Quiet" restful colors as well as "noisy" active colors would exercise a healthy, indirect control over the children's actions. High ceilings and a broad expanse of floor space would give a sense of freedom and call the child to test his physical ability in running, hopping, balancing, dancing, singing, painting, swinging pendulums, or piling blocks on a balance beam.

Low ceilings and carpeted floors would provide an intimate protected atmosphere conducive to quiet activities like reading, listening to records, napping, playing quiet games, working with number and language materials or listening to stories. Schools for the very young need to provide many kinds of atmospheres for the varied activities of their young students.

Textured alphabets and textured numbers set into the walls of the room would give the young child a kinesthetic approach to symbols. A combination of rough and smooth surfaces



Sculptured Confrontation Chart

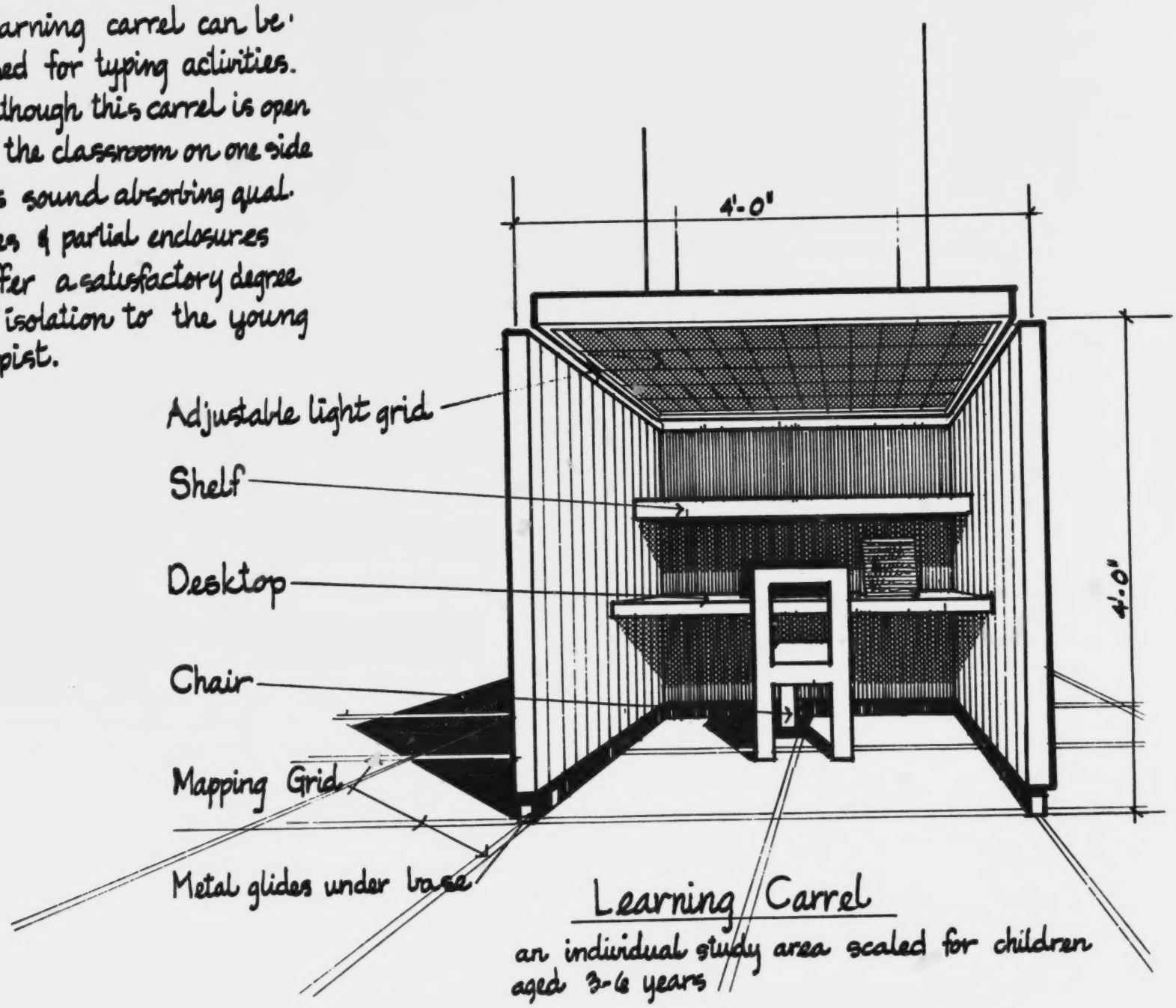


in the room could give the child experience in tactile discrimination. Hues of one color, graduated from dark to light, used down a row of cabinet doors might give the child a new dimension in color experience.

A tape recorder with six sets of headphones might be provided at one table for a variety of activities using the teacher's own familiar voice on tapes. The recorder can also be used by the children to record their own original stories, descriptions of events that have happened to them, or verbal descriptions of things that they have made. A film loop projector with a library of loops from which to choose could be placed in a quiet corner of the room for the children to operate and view at their own discretion.

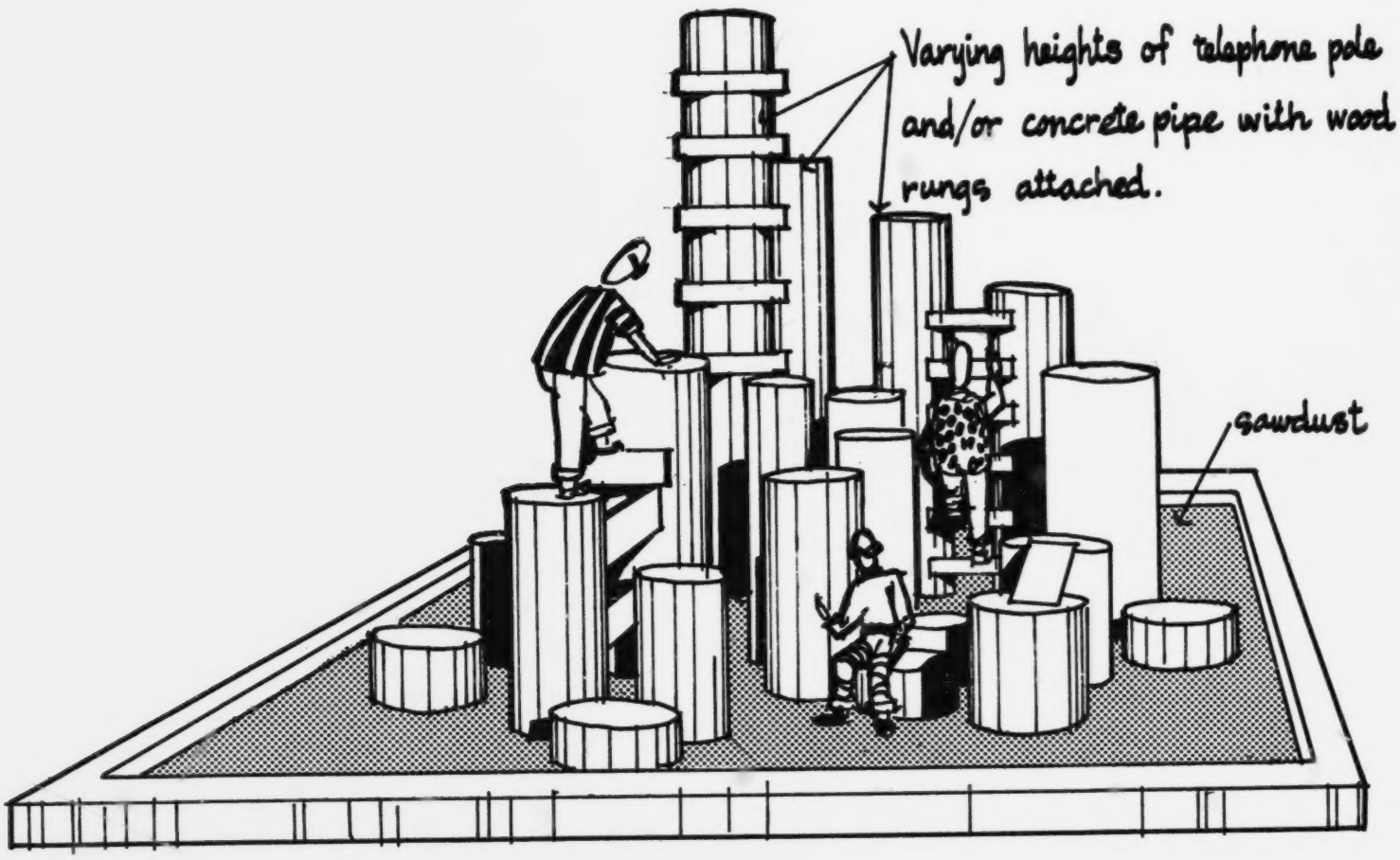
The outdoor spaces around the building must be planned as carefully as the interior spaces in a school for the very young. Because urban (and suburban) life isolates the child from many experiences with the outdoors, its plants and creatures, the school should provide some of these learning situations for the child. Outdoor learning courts landscaped to provide encounters with various kinds of plants, with various shapes of leaves and flowers, and with various kinds of butterflies and birds that will be attracted to specific plant foods can provide many incidental and structured learning experiences for the young child.

Learning carrel can be used for typing activities. Although this carrel is open to the classroom on one side its sound absorbing qualities & partial enclosures offer a satisfactory degree of isolation to the young typist.

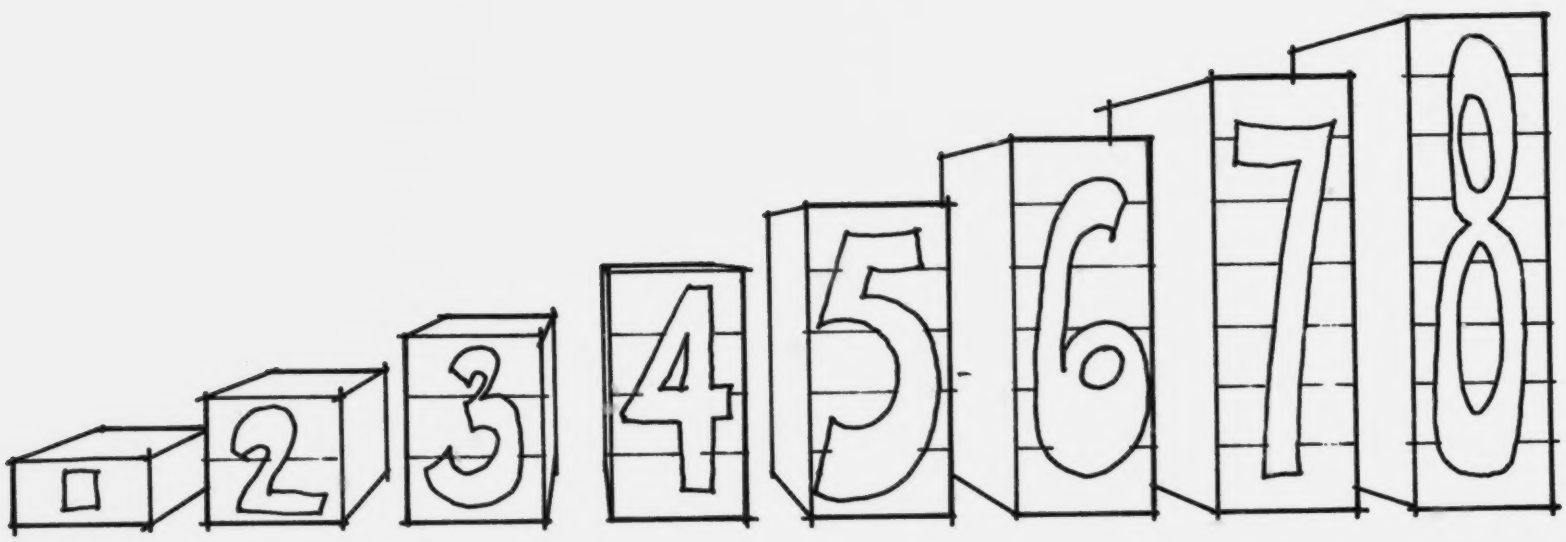


Learning Carrel

an individual study area scaled for children aged 3-6 years

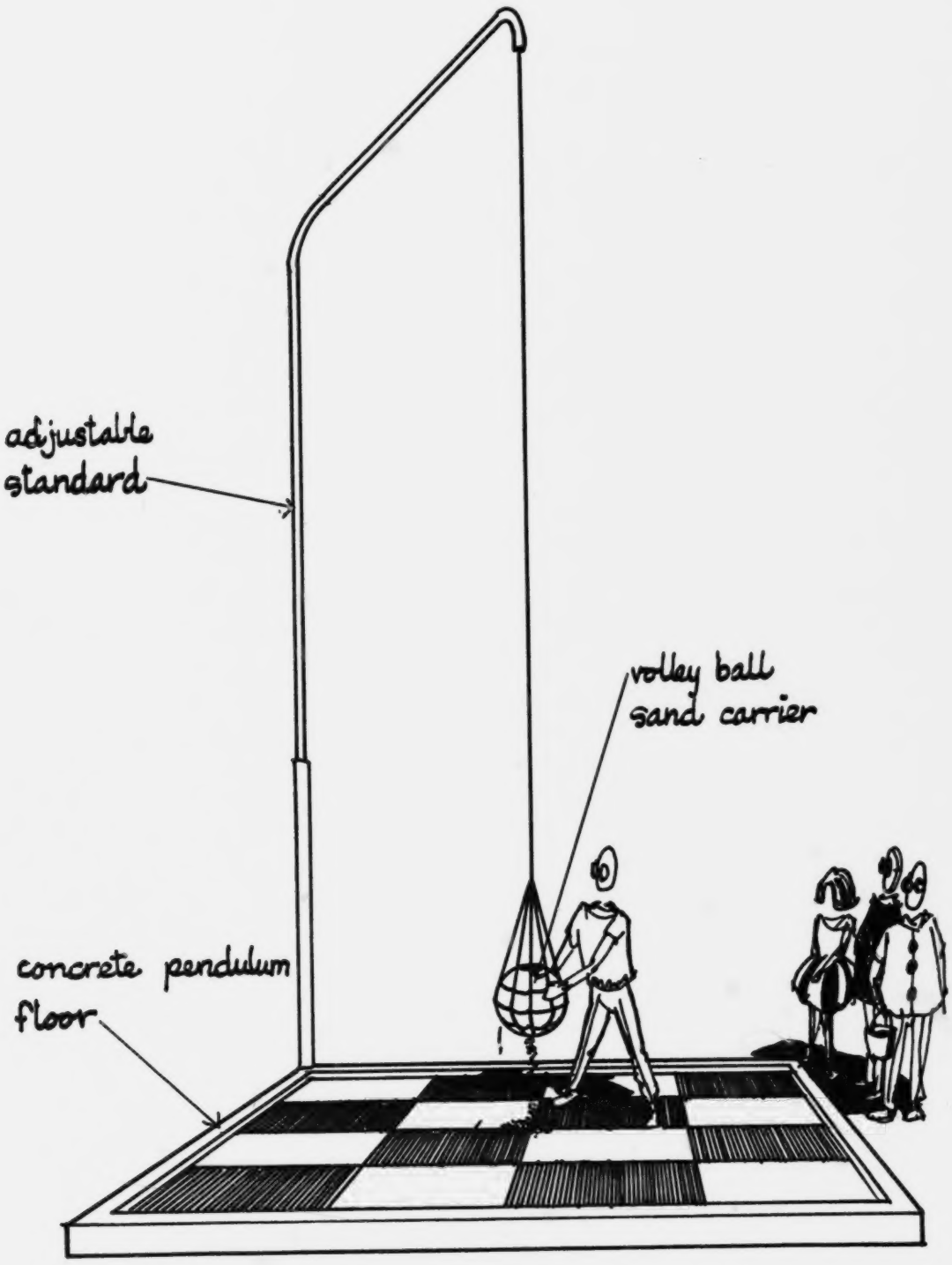


Climbing Complex



Numerical Sequence Blocks

Children discover the sequence of numbers

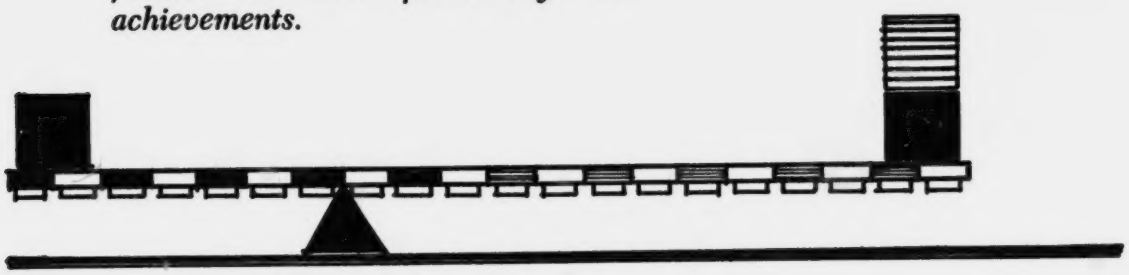


Giant Pendulum

Playground equipment designed to give the child an intuitive feeling for the workings of levers and pulleys and sand and water tables which provide an awareness of geographical forms through unstructured play add a further richness to his everyday experiences. Pendulums filled with sand which can trace a pattern of their orbits on a black-topped surface reveal unexpected and surprising designs to delight the young child.

The contribution of American technology and "know-how" to a facility of this sort will be particularly evident in the indestructibility and in the comfortableness of the environment. Maintenance free floors, sound absorbent walls and ceiling, computer programmed heating and cooling systems for rooms occupied by active young bodies, carefully controlled lighting systems for young eyes in varied activities, electronic gadgets for learning, vivid fade-proof colors in furniture and walls – these contributions and many more will be the productions of American technology.

Artfully conceived and thoughtfully executed, this new prepared environment for the very young can become the primary moderator of the behavior of the children within its walls. It can provide a rich background of learning for the young child in the years when he is experiencing explosions of learning and is literally absorbing impressions of the physical world, of other people, and of himself – impressions that will profoundly influence his later personality and achievements.



Balance Beam

Plan of balance beam

balance beams may be used by children to discover the laws of mechanics

children may use the giant pendulum to discover dipses, parabolas, and other curves traced by the perdulum

MANAGEABLE COMPLEXITY

EDUCATIONAL RATIONALE

The term Manageable Complexity in its present learning context first came to the attention of the author in a paper by William Hull of Elementary Science Studies, and because of its descriptive elegance we have asked to borrow it for this section of the book. The term as it relates to learning carries its own implications: manageable complexity may be defined as the amount of complexity that can be comfortably accommodated by the learner, so that optimum learning takes place. It is the thesis of this section that the optimal conditions for early learning may be found in this concept of manageable complexity.

J. McV. Hunt explores the same idea when he talks about "the problem of the match."

> "The notion of an optimum of incongruity, coupled with the notion that the standard on which incongruity is based derives from experience, gives rise to what I have termed 'the problem of the match' (Hunt, 1961, pp. 267 ff.). This problem of the match implies that if the circumstances encountered are to be attractive and interesting and are yet to be challenging enough to call forth those accommodative changes within the structure of central processes that presumably constitute learning, they must be properly matched to those 'standards' which the child has already developed in the course of his past experiences. The status of our knowledge about these matters is entirely inadequate for us to arrange such matches entirely from the outside. It would appear that the child must have some opportunity to follow his own bent."

Although in the section on early stimulation and learning we pointed out that the young child should be exposed to a varied array of experiences for maximum learning, it is important that we do not present him with what Dr. Bruner has termed a "Coney Island atmosphere." A sense of order in the array as well as an implicit order in many of the learning materials will enable the child to find and use those materials most suited to his needs and interests.

Mr. Hull expresses this need for order in variety in his writings:

> "Experiences in classifying and in dealing with the relationships between classes can help children develop skills that will enable them to learn more effectively. These experiences must be arranged for children because they are unlikely to encounter or recognize situations that lend themselves to clear unambiguous classifications in the normal course of their experience. For children to develop skill in dealing with class relationships and an increased awareness of their own capacities for effective thinking, it is necessary at first to deal with a restricted set of materials, a small universe whose attributes are easy to define . . . . We have found that children can easily become intrigued with sorting, classifying, forming and dealing with the relationships of classes when they have appropriate materials to work with. While such experiences are based upon a greatly simplified and restricted example of the real world, they do present children with a level of complexity within their grasp — a complexity that is challenging but manageable."

Mr. Hull continues by saying that the problem-solving skills learned from working with appropriate manipulable concrete materials have direct parallels in everyday thinking and through using materials that present the same ideas in different forms, children can be helped to apply (generally) the knowledge, attitudes and skills that they have learned by working with concrete materials.

> "In the course of our study we became aware that some children manage to acquire these skills at a very early age . . . . The results we are getting tend to confirm our suspicion that the kind of skills we are interested in depend far more on certain key experiences a child has had than they do upon age or grade in school."

Both Dr. Hunt and Mr. Hull are cautious about our present ability to adequately structure this manageable complexity for each individual child. As Bill Hull comments, "In view of children's great potential for learning, any attempt to help them with their thinking must be undertaken with humility, restraint, and respect."

With these ideas in mind, we must then ask ourselves if it is possible to plan a learning environment for young children that will assure them an exposure to the kind of key experiences that seem crucial in the development of problem-solving abilities?

And, of even more relevance, do these key catalytic experiences differ according to the individual child or are they the same for all children? In exploring this problem some basic considerations that grew out of an exchange of ideas between psychologists and curriculum builders in Cambridge, Massachusetts, in the summer of 1963 seem particularly relevant. These include an enumeration of the following categories that appear pertinent to a systematic study of the teaching-learning transaction as it relates to younger children:

1. *The role of play.*

   To what extent does manipulating or playing with concrete materials give the child an intuitive feeling for the patterns and interrelationships of the real world?

2. *The role of variation.*

   How many and how varied must the embodiments of a concept or principle be before it can be generalized by a child and/or many children?

3. *The role of concreteness.*

If we assume that early learning proceeds from the concrete to the abstract, is one kind of concrete experience better than another, and can some experiences be so overpoweringly concrete that they inhibit generalizations?

4. *The role of constructivity.*

What are the relative roles of constructivity and analysis in the learning experience? Is a child better able to grasp an idea if he has had a part in constructing the experience leading to the idea than if he is required to analyze a preconstructed embodiment of it into its component elements? And once he has constructed the idea, is it equally important for him to analyze, to rediscover the components, and to synthesize, possibly repeating the entire process many times?

5. *The role of the learning episode.*

What constitutes a satisfactory "unit of learning" for children of different ages and abilities? The younger child may require a series of smaller units with more immediate feedback cues by which to check his progress, while the older or more astute child may be able to cope with larger and more complex units and speculate on his own over a longer period of time. How can we accommodate both of these needs in an early learning environment?

6. *The role of defense.*

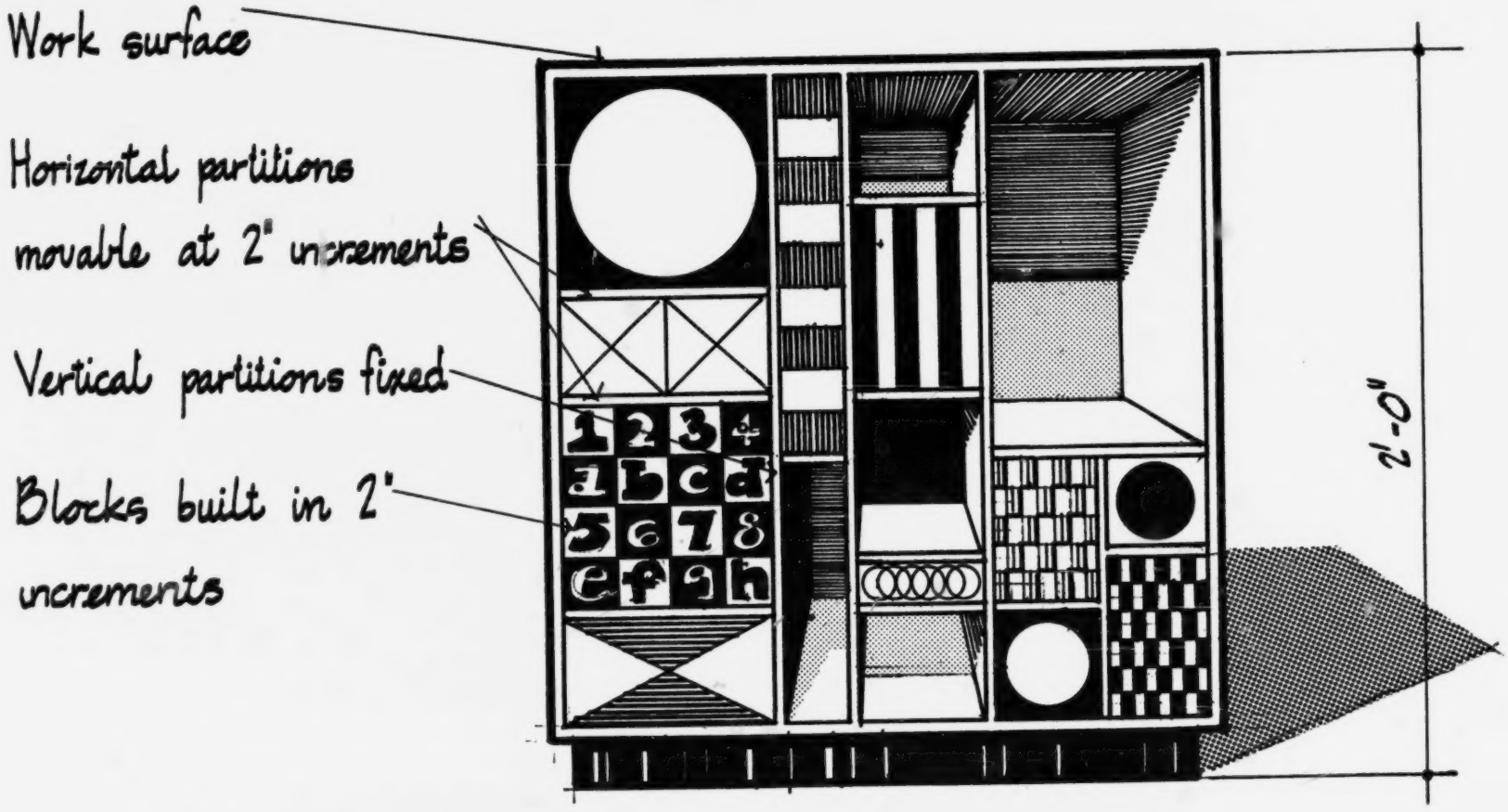
Any learning activity involves a sense of one's mettle being tested. Beyond this, the child must protect himself against confusion and overload. Defensive behaviors that operate strongly enough to interfere with learning should be recognized and investigated by the planners of a school for the very young.

ARCHITECTURAL INTERPRETATIONS

In planning an early learning environment we must keep the concept of manageable complexity before us at all times. How can the "prepared environment" be designed to allow the child the opportunity to find his own level of complexity in his learning experiences?

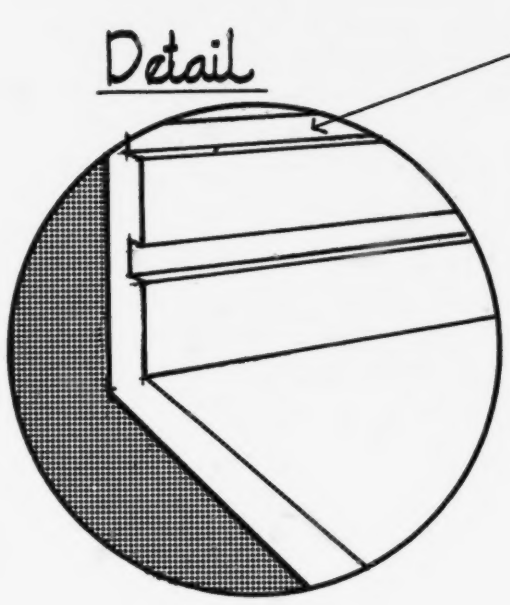
The physical environment can play a part in this learning process in many ways: It can allow the child a spontaneity of free movement and mobility so that he is able to use rather than inhibit his natural physical energies while he is learning. To enhance the child's sense of freedom in movement, the physical spaces must be large enough to enable the child to move around easily without disturbing others, to have ample space for construction with concrete materials, and to have a proximity to materials and activities offered without feeling that he is impinged upon by them.

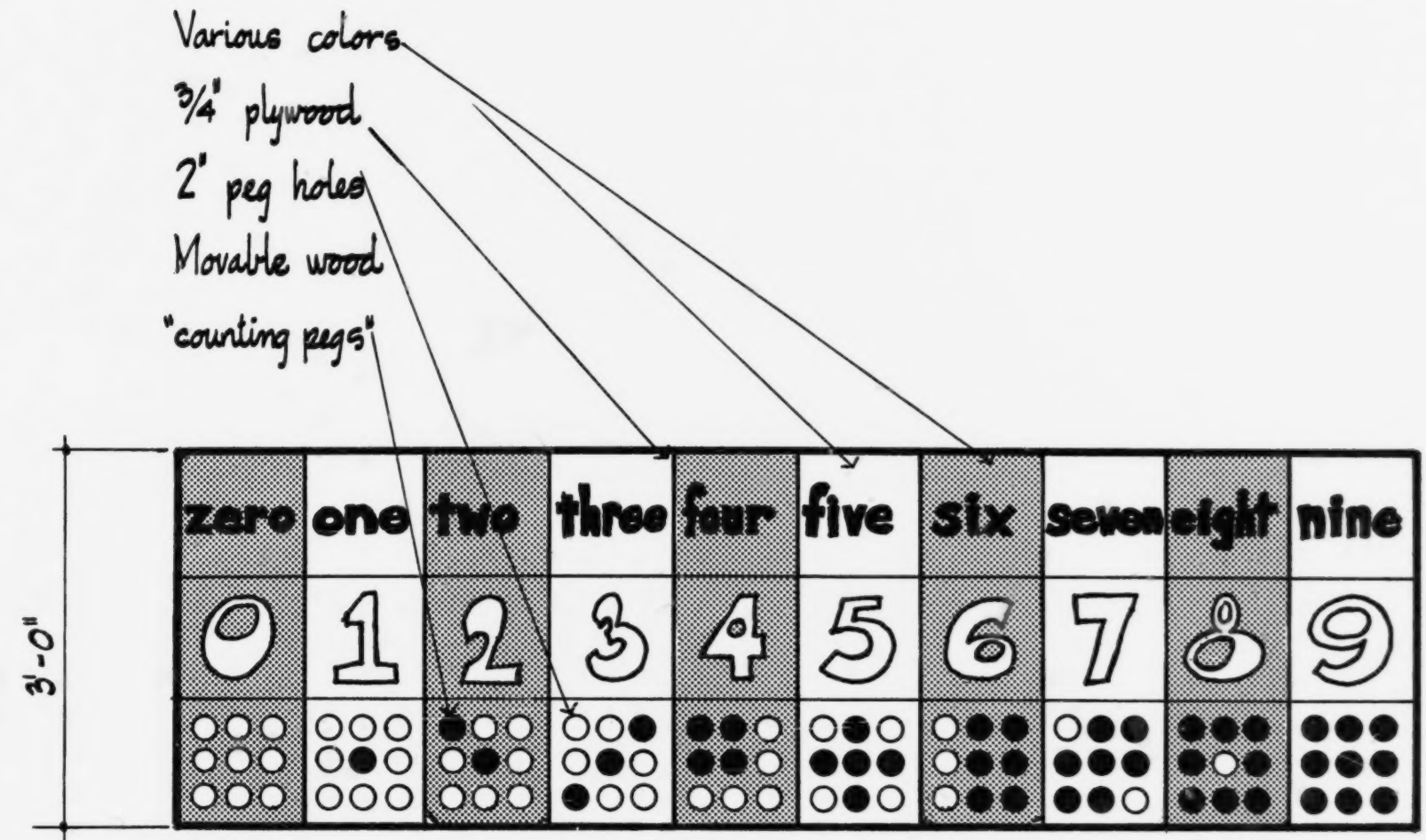
A sense of order in the physical environment enables the child to make thoughtful rather than impulsive choices in selecting activities. The materials can be stored and displayed so that their inherent structures are evident to the child from his own observations. An example of this order would be the storing of blocks so that their dimensions and relationships are evident to the child. This could be accomplished in many ways; for instance, by building the storage cabinets so that various sized compartments fit various sized blocks and blocks will only fit into their specific compartments. This will enable the child to select either a variety of sizes of blocks for building or one kind only, according to his own inclinations, and will require a certain discrimination on his part in putting the materials away. A further extension of this idea might be having flexible partitions in the block storage area so that the child can change the compartment sizes and organize the blocks in different ways, i.e., by width, by length, by height, etc.



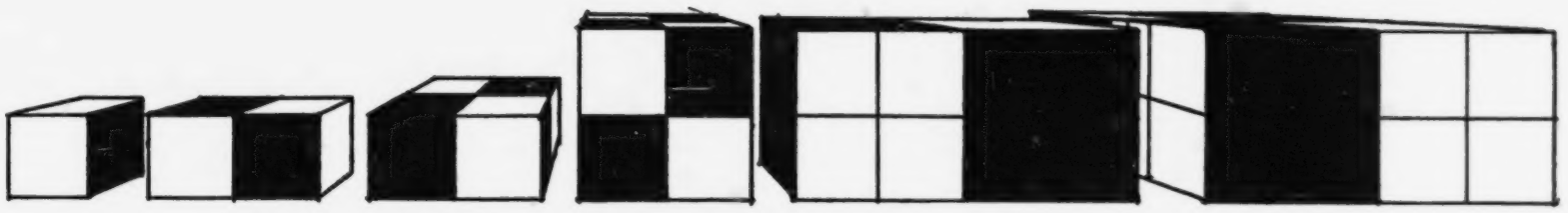
Ordered Storage of Play Blocks

This low cabinet offers the child an opportunity for creative expression as well as providing order in the classroom. By rearranging the horizontal partitions and by utilizing various shapes, sizes, colors and patterns in the blocks, the child can create interesting designs as the blocks are stored. The circular patterns in the illustration could represent either cube shaped blocks with designs painted on the ends or cylinder shaped blocks that fit into cylindrical openings in larger cube blocks. Similar possibilities exist for the triangle designs... either large flat blocks with painted designs or blocks in the shape of triangular prisms.

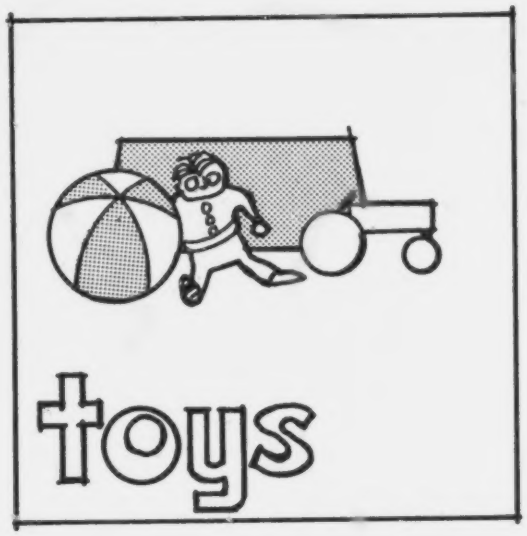

Detail
Horizontal grooves on vertical partitions allow movement of shelves in 2" increments. This allows the child to restructure the storage at will.

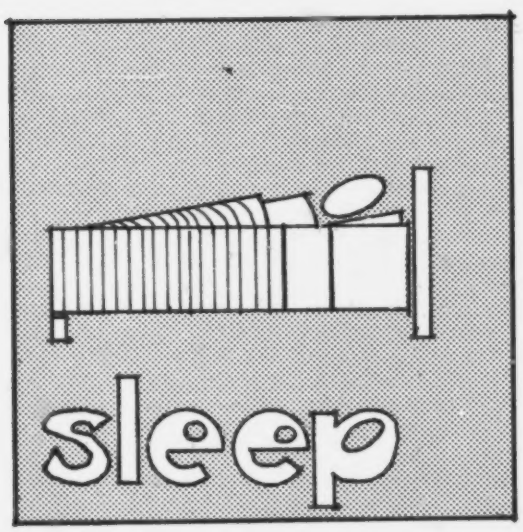


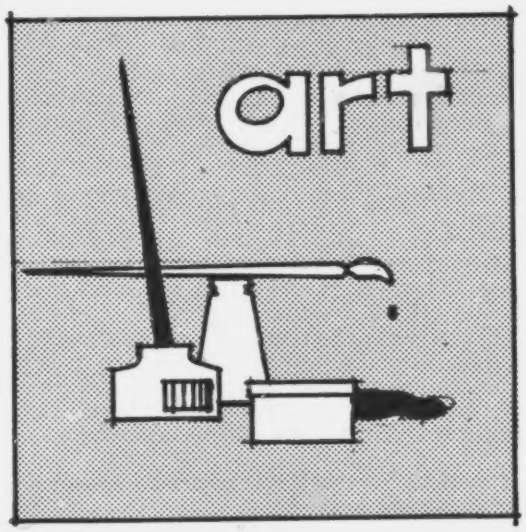
Numerical Confrontation Chart

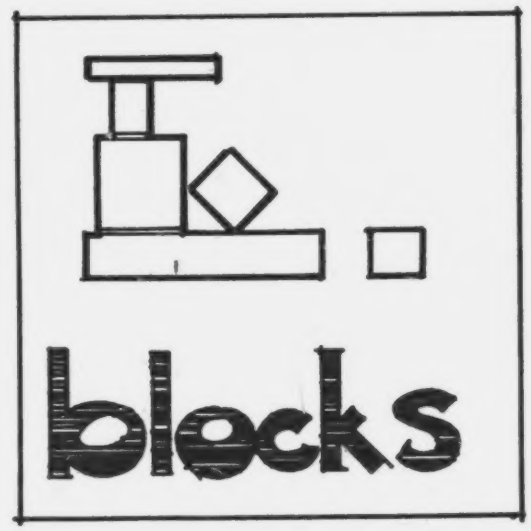


Mathematical Climbing Blocks
to the base two
Children discover the explosive expansion of numbers









Graphic Confrontation Chart

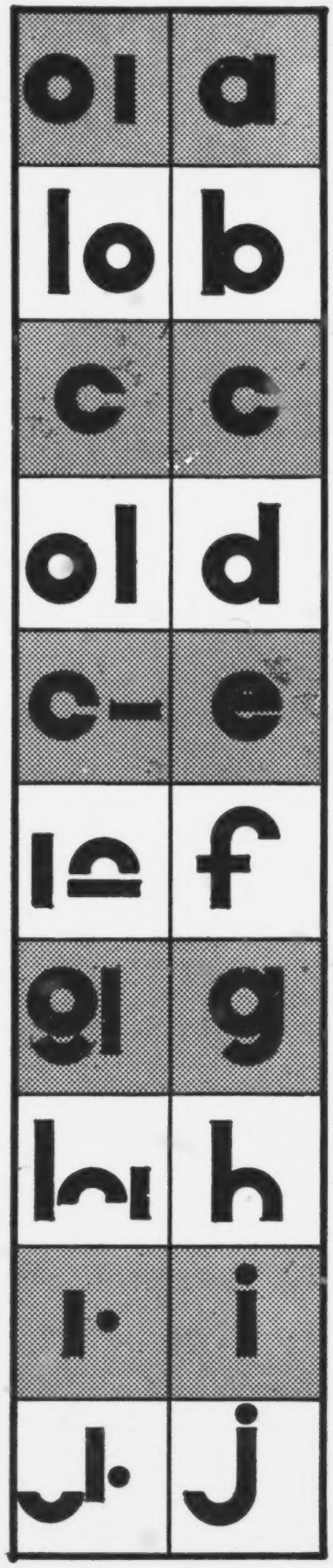
The graphic confrontation charts may be used as door fronts on closed storage areas, or signs to identify rooms or other functional areas.

Storage areas, where materials to be stored are pictured in colorful drawings, present another form of order for the young child. These offer him two-dimensional representations of familiar three dimensional objects, an early ideographic form of reading for information for the very young child. Written labels placed under the designated areas might help the child build a sight vocabulary of familiar object names. A duplicate label which the child can match to the shelf label provides another interesting learning activity for the child.

It is important that materials be arranged so that they may be combined or separated into complex or simple units of activity by the child thus enabling him to organize his own learning episodes. This freedom and opportunity to compose his own learning units is a vital ingredient in encouraging the child to attempt new and challenging activities by enabling him to protect himself against confusion and overload.

It seems most conducive to learning if the materials and activities provided contain their own "controls of error" or feedback cues for the child. This ability to monitor his own learning is an important concept in minimizing the child's defensive attitudes toward "testing his mettle" in learning experiences. Colorful confrontation charts built into the walls, the floors, or on table tops offer the child objective means of checking his growing repertoire of such useful knowledge as color names, number symbols, number quantities, etc. Concrete embodiments of ideas such as positive and negative numbers and the hierarchy of numbers enable the child to play games with representations of these abstract ideas. Grids on the floor which can be used to build matrix patterns or to carry out simple mapping exercises offer another means for young children to use in organizing their ideas.

A happy blend of freedom and order should be the goal of the designer of a prepared learning environment for young children.



The alphabetical chart allows self guided learning of the letters, their construction and sequencial order. The chart may be constructed of metal in such a manner that the child may arrange magnetized letter segments and then follow a self-corrective procedure.

Alphabetical Confrontation Chart

THE PLAY OF YOUNG CHILDREN

EDUCATIONAL RATIONALE

Play is the dynamic force in the prepared environment. This universal activity of young children that fills the majority of their waking hours is a primary instigator of learning and must be fostered and encouraged in a prepared learning environment for very young children. The phenomena of play must be explored if its tremendous implications for learning are to be appreciated and utilized by those concerned with the total development of the young child. A too narrow psycho-sexual interpretation of children's play misses the richness of variation and experience that play encompasses and fails to fully appreciate its significance in the total learning process.

Many different aspects of children's play must be considered to gain an appreciation and understanding of its full meaning and role in children's development. These would include (1) play as consolation and anticipation; (2) play as cognitive assimilation; (3) play as mastery or competence seeking; and (4) play as response to physiological need. A look at each of these facets of play may offer insights into the learning process and increase an awareness of the implications of play.

Play As Consolation, and Anticipation

This is the usual role assigned to play. The child, through his play, acts out and tries to resolve his disappoint ments and fears. His play actions reflect his feelings and attitudes toward himself and toward the people around him. The child may invent imaginary playmates who respond to his wishes and desires. Play therapy, a tool of child psychiatry, utilizes this reflective quality of the young child's play for diagnostic purposes.

A further value to the child of this type of play is the opportunity it affords him to learn to delay gratification. By enabling the child to bring back to conscious awareness vivid memories of previous positive experiences, he is reconciled to accept moderate delay in having his various needs met. Thus the hungry child who knows from past experience that he will be fed within a reasonable length of time may play that he is cooking and serving a meal. In this way, he assuages his hunger while tolerating a temporary delay in having his real needs met. In the same way the child whose mother is away on a trip may pretend that he is meeting her at the airport or is with her on the plane as a means of delaying gratification of his need to have her actually be with him.

A further aspect of this type of fantasy play and one closely allied to the consolation role is the anticipatory function of such play. The child projects himself through his play into other roles, other times, other places. He "tries out" experiences vicariously through the safety of play, thus extending his concepts of the world and its relationships. He places himself in new situations and new roles through his imagination and thus alleviates the tensions and the uncertainties of the unknown.

A most essential ingredient in fostering such play is the sense of freedom that the children feel in participating in such activities. This includes a sense of freedom to leave the play group at any time as well as a freedom to enter it. It also includes an unspoken feeling of protection against the idiosyncrasies of any highly deviant child in the play group. An overdependence on fantasy play in young children, especially on one specific form of fantasy play, may indicate the presence of an unresolved fear or problem in the young child's life and should be observed carefully by the teacher. Eisenberg, in describing the vast differences existing between the normal fantasy play of young children and the hallucinations of psychotic adults, pointed out that normal children know what is real and what is fanciful in their play and can turn it (imaginary play) off and on when it suits them or when something more stimulating appears.

Play As Cognitive Assimilation

While the consolatory and anticipatory sides of play seem to be recognized as important in the child's emotional development, Jean Piaget sees in early imaginative play an important step in the young child's cognitive development. According to Piaget, true imitative or symbolic play begins to occur when the child, in imitation of some past experience and in order to represent that experience in the present context, allows one object to represent another. For instance, blowing on a stick as though it were a whistle or pretending to put a teddy bear to bed as the child has been put to bed by his mother are typical examples of this early play. One object symbolizes another in this assimilatory process, and the symbols are usually chosen by the child on the basis of similarity of shape, color, or some other external attribute that reminds the child of the symbolized object.

At about the same time that the child learns to represent past experience through these symbols, he is also acquiring collective signs for objects and events in the form of language. "But needless to say," according to Piaget, "for a young child who finds the system of ready-made collective signs (language) inadequate since they are partly inaccessible and are hard to master, these verbal signs will for a long time remain unsuitable for the expression of the particular entities on which the subject is still concentrated. This is why as long as egocentric assimilation to the subject's own actions prevails, the child will require symbols; hence symbolic play or imaginative play, the purest form of egocentric and symbolic thought, the assimilation of reality to the subject's own interests and the expression of reality through the use of images fashioned by himself."

A further aspect of cognitive assimilation in play is found in the analysis of objects and structures undertaken by the child through manipulative play of all types. The building up and taking apart of block structures, puzzles, and mechanical toys, and the repetition of such activities as pouring sand and water from one container to another during long periods of sustained activity are forms of this analytical-synthetical component of play. The need to analyze, to discover the component elements of certain relationships, and then to synthesize these components back into the whole are important aspects of such manipulative play. The child's need to handle a limited universe of concrete objects and materials so that such abstract ideas as inversion and compensation can gradually be assimilated are play actions prerequisite to higher forms of abstract thinking as pointed to by Bruner, Olver, Greenfield et al in their report on studies of cognitive growth undertaken at Harvard.

Play As Mastery or Competence Seeking

An important dimension of play that is often overlooked but is currently receiving attention from psychologists and learning theorists might be appropriately called mastery play. A basic "drive for competence" has been articulated as a primary motivational source by Robert White of Harvard in a recent paper. According to White, this powerful motivational force is first evidenced in young children's play and continues to evolve throughout life. The repetition and practice of developing skills and competencies through playful activities is evident to all who have carefully observed young children. The concentration of a young child in buttoning and unbuttoning a garment, in learning to lace a shoe, or in opening and closing a drawer are all evidences of this kind of practicing play. The child seems unaware of any external motivation. Rather an intrinsic drive for mastery or perfection seems to be the motivational force behind these kinds of play activities.

Maria Montessori recognized this drive for competence, as White so aptly phrases it, and she provided for this type of play (though she chose to call it work) in her "practical life" exercises. Her dressing frames were toys designed to provide the young child with graded experiences requiring progressive degrees of mastery and competence. Through such toys she provided the child with a means of competence play conducive to experimentation and removed from external pressures of premature perfection. It seems reasonable to assume that the encouragement of this type of play in the objective and unhurried atmosphere of a planned learning environment might enhance the development of what Jerome Kagan has chosen to call the quality of reflectivity in the cognitive style of the child.

Play As Response to Physiological Need

An additional aspect of play, closely allied to the competence drive but seeming to be more rooted in the physiological than in the psychological needs of the child is evident to all observers of young children. This motoric play, manifesting itself first at a very early age in the sustained activity of a young infant trying to turn himself over and observed again a few months later in the efforts of this same infant to pull himself into an upright position, fulfills physiological needs often overlooked by the adults in the child's environment. At a still later age, during the period from three to six years and beyond, the insistent demands of the young child's body that he climb, balance on narrow surfaces, jump, bounce, throw, and run are not only misunderstood by adults but are usually equated with gross misbehavior. All too often the adults in the young child's environment, rather than providing the child with appropriate and acceptable physical outlets for his insistent motor energies (normal adjuncts to developing motor coordinations) attempt to throttle and severely restrain the young child's natural physical inclinations. Thus they deprive him of a necessary form of developmental play.

ARCHITECTURAL INTERPRETATIONS

The prepared learning environment for young children should provide the child with opportunities to participate in all forms of play and should encourage a balanced program of play activities. Child-sized physical structures such as large boxes or shelters that are conducive to imaginative play activities should be provided and such accoutrements of fantasy play as dress-up clothes, hats, and finger and hand puppets.

It is suggested that structures for imaginative play as well as play costumes should be simply designed with a minimum of detail so that children can utilize them in many roles and play situations. The child's imagination will then be called upon to provide specifics that fit the play situation.

An opportunity to participate spontaneously in many types of art activities also provides the child with a means of expressing what he thinks and feels without using words. Music is also a medium of imaginative play for young children and simple musical instruments that require a minimum of skill should be available for their use. Dancing to music and responding to musical rhythms is a means of expressive play for young children, again augmenting their verbal expression. Music can also play a highly significant role in the more cognitive aspects of a young child's development as seen in the work of Carl Orff in which he uses the child's own interest in playing with words to discover musical patterns and symmetry.

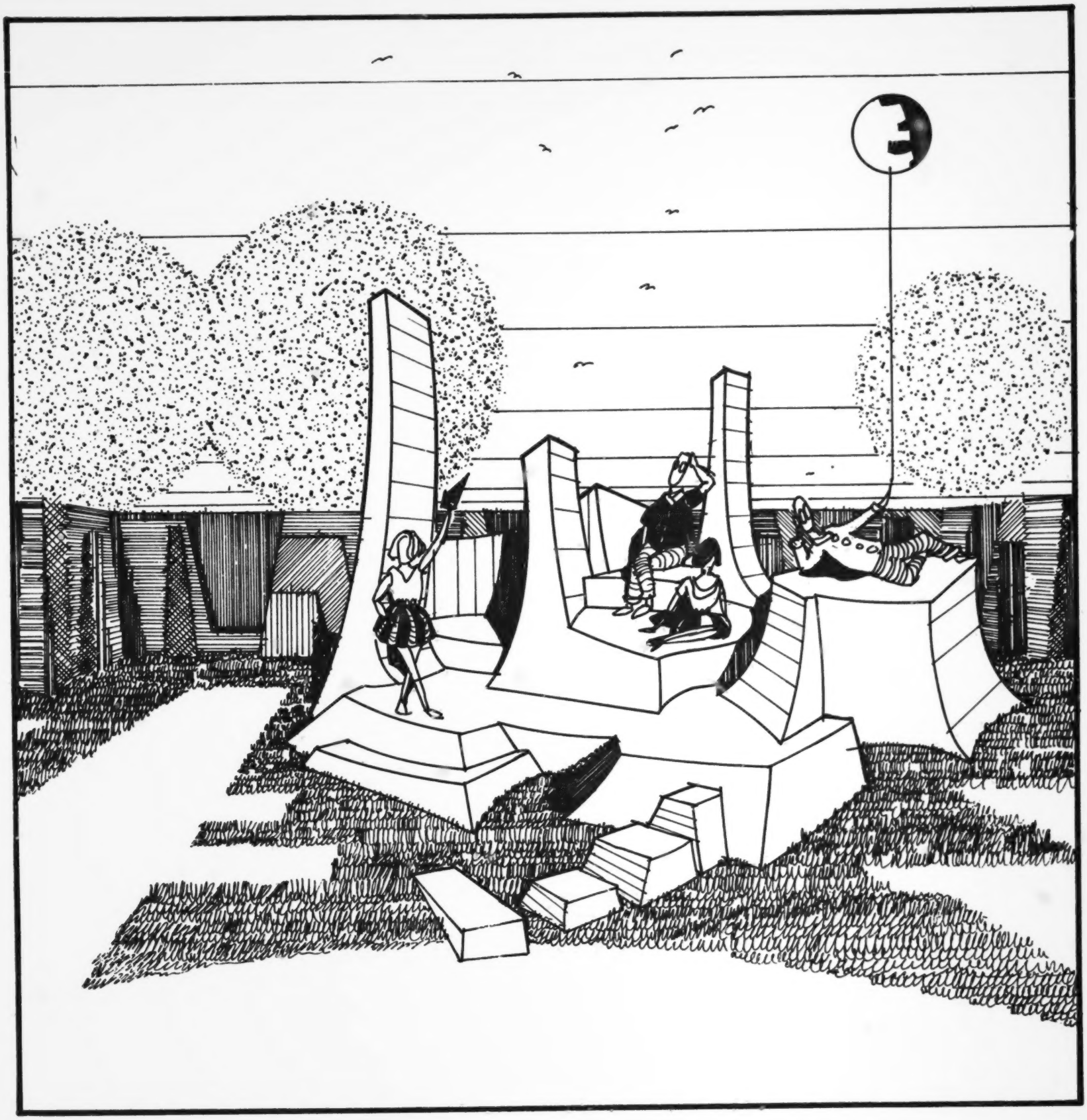
A variety of concrete materials for manipulative play including problem-solving activities, materials for perceptual development of all kinds, and building and construction materials also provide an important basis for young children's cognitive explorations. As has been mentioned in an earlier section, these materials offer the child a limited and concrete universe to manipulate and transform while the child is sorting out relationships and learning to deal with them abstractly. Manageable complexity, of course, is the key to stimulating this type of cognitive play.

The need for competence play in the young child can best be met through activities that help the child achieve a sense of mastery in some particular area. What this area is will vary for different children; but, if the environment offers the child an opportunity to do things for himself and to participate in activities with a built-in feedback system (a puzzle, for instance), his sense of competence will probably be enhanced. Montessori's dressing frames and practical life activities still offer a fascination to very young children who love to master the skills of buttoning, pouring, sweeping, etc.

The outdoor play environment, if well designed, can provide the child with a suitable outlet for his insistent physical energies and give him an additional area for mastery and a feeling of competence. Few outdoor environments in this country offer original solutions to meet the physical play needs of young children, although the adventure playgrounds in England and the Scandinavian countries offer some interesting prototypes. An "organized junk pile" currently being designed by Whitney Smith and Robert Meyerof of Smith and Williams, Pasadena, California, promises some original answers as does some of the new play sculpture in New York City's parks.

The design of the facility for very young children should encourage and enhance the various forms of play. It must also provide subtle demarcations between play areas designed for contrasting types of play, so that one play group does not dominate or impose upon another.

The many different facets of play must be understood and respected by the teacher of young children if this powerful force for intellectual and emotional development is to be utilized in the prepared learning environment. For the young child, play is not an escape from reality but the means through which he learns to deal with reality. It is the dynamic force in the young child's world.



Free form Play Sculpture

The free-form play sculpture allows the children to imagine any setting, situation, or object they wish. It can be used as a backdrop for games, drama, or individual play.

THE ROLE OF THE TEACHER

EDUCATIONAL RATIONALE

And what about the teachers in a school of this kind? What role do they play?

The teachers in such a school for the very young must be very special people. They must have a high tolerance for individuality and must be willing to accept children on many levels of development in any one age grouping. The individual differences manifest themselves most dramatically perhaps in the years from three to six when wide variations in physical capabilities, in verbal skills, and in emotional and intellectual development are evident to even the most casual observer.

The teacher of the very young must be an astute observer of young children. He or she must be able to "read" the clues that tell when a child is ready to take a significant learning step that can be accommodated. Although the child in such a school must have a sense of freedom, it is a freedom within limits cut to his own size. The teacher must help the child structure his own learning by introducing him to new experiences at a time seasonable for maximum effectiveness. As a very wise person once remarked, "Learning is a series of exquisitely graded frustrations." It is up to the teacher of the young child to hone these frustrations to a delicate edge.

The teacher also must be able to achieve a fine balance between two divergent but equally important roles, the role of the model and the role of the observer. The teacher of these children must c o n s t a n t l y guard against unnecessary intrusions into the child's spontaneous learning activities while still being available to the child as a verbal reinforcer and a motor, verbal, and cultural model.

If "the match" that Dr. Hunt talks about is to be made by the child, the teacher must be the architect of the array from which he can choose. The ability to plan this array with precision and imagination is necessarily based on a careful and perceptive observation of the children in the teacher's care. The teacher of the young must become an objective observer of children, developing an empathy with them that will enable him to understand the child's more subjective viewpoint of situations and experiences. The teacher also must learn to listen closely to children's comments and observations, recognizing that through his language the child reveals significant information about himself and his thinking processes.

Although the classroom ideally should be designed to allow the child to provide much of his own reinforcement for learning through self-correcting materials and spontaneously motivated activities, the role of the teacher as a verbal reinforcer should not be underestimated. A wealth of data exists pointing to the significance of verbal reinforcement as a factor in behavioral change. The teacher of the young must be aware of the implications of these findings as they relate to the learning process.

Propitious use of positive reinforcement will certainly play a role in the development of such desirable attitudes for learning as curiosity, tolerance for ambiguity, willingness to experiment, willingness to search for answers, etc. On the other side of the coin, an adult's premature demands for conclusions and skills as well as subtle judgments of the relative merits of one classroom activity over another, ignoring the child's own developmental stage and predilections, can provide strong negative reinforcers aversive to creative learning.

The important role as a model in motor activities, verbal skills, and cultural mores places a further responsibility on the teacher. The imitative gaits, expressions, and mannerisms of young children, reflecting idiosyncrasies of the important adults in their environment attest to the significance of the adult model. The restrictive or expansive nature of the language used by the adult in talking to the child seems to determine not only the verbal expressions used by the child but seems to affect his cognitive growth as well.

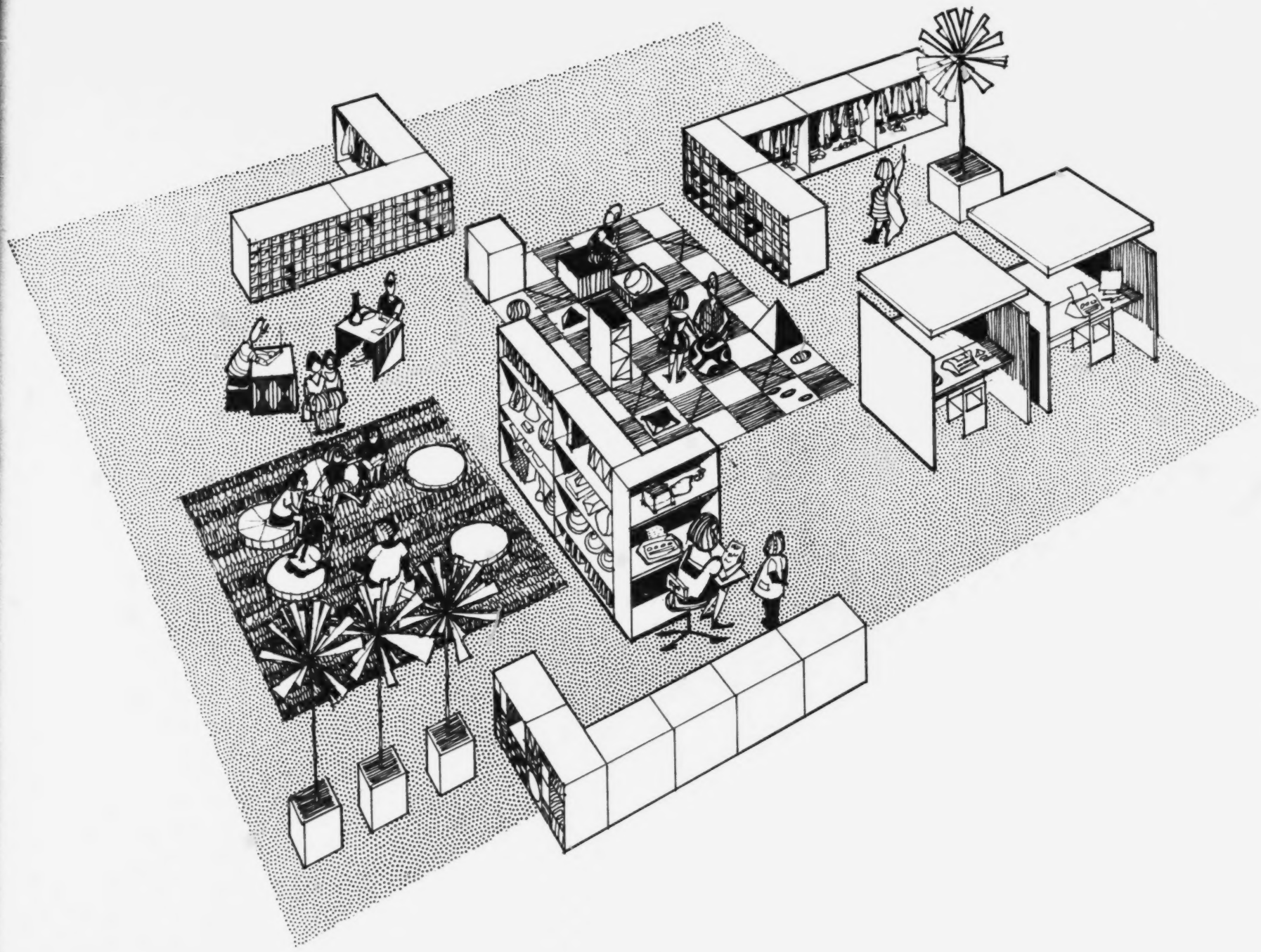
As Dr. Robert Hess of the University of Chicago points out, restrictive language patterns used by the adult in speaking to the child close the door to further inquiry and prevent the child from understanding cause and effect relationships. A pattern of unexplained orders and commands as well as refusals to answer questions posed by the child are forms of restrictive language. Expansive language on the other hand is "teaching" language that opens the door to new ideas for the child. Thus the parent or teacher who replies to the child's "why" with "Because I said so" generates an entirely different internal response than the one who gives the child a logical reason for his decision.

Ideally in such schools for the very young both male and f e m a l e teacher-models should be present. Perhaps with the growing awareness of the critical importance of these early years, an effort can be made to attract able young men as well as young women into this profession. The professional qualities and qualifications of such a teacher hardly can be overstated. A thorough knowledge and understanding of psychological development including both affective and cognitive factors certainly should be an essential requirement.

ARCHITECTURAL INTERPRETATIONS

To accomplish the kind of individualized teaching envisioned, the teacher of young children must have private spaces within the facility to meet his or her professional needs. A desk for planning and space to keep detailed records of each child's progress and development are essentials. A well-planned and convenient spot for group discussions with the teaching team, for lectures by visiting specialists, and for meetings with small groups of parents should be included in the plans. Small rooms for individual testing, for nursing services, and for parent conferences should be provided. Since many persons will be interested in visiting such a laboratory for learning, means should be provided in the facility for unobtrusive observation of the classes by visitors.

The teacher of the young must be the catalyst in the child's interactions with the prepared learning environment. Whether serving as exemplar, moderator, or innovator, the importance of the teacher's role in the dynamics of the prepared environment should never be underestimated.



Typical Learning Module

This learning module represents a unit section of the prepared environment. Such components as the block storage cabinet, low stacking tables, typing carrels, floor grid, individual storage, and low accessible shelves are parts of this unit. These free-standing and movable components provide the teaching team a variety of arrangements within the large environment. The conversation area here is a carpeted area with comfortable hassocks while in other modules it may be a sunken area with carpeted steps. Small sinks and lavatory units provide the only stationary components in the space.

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CREDITS

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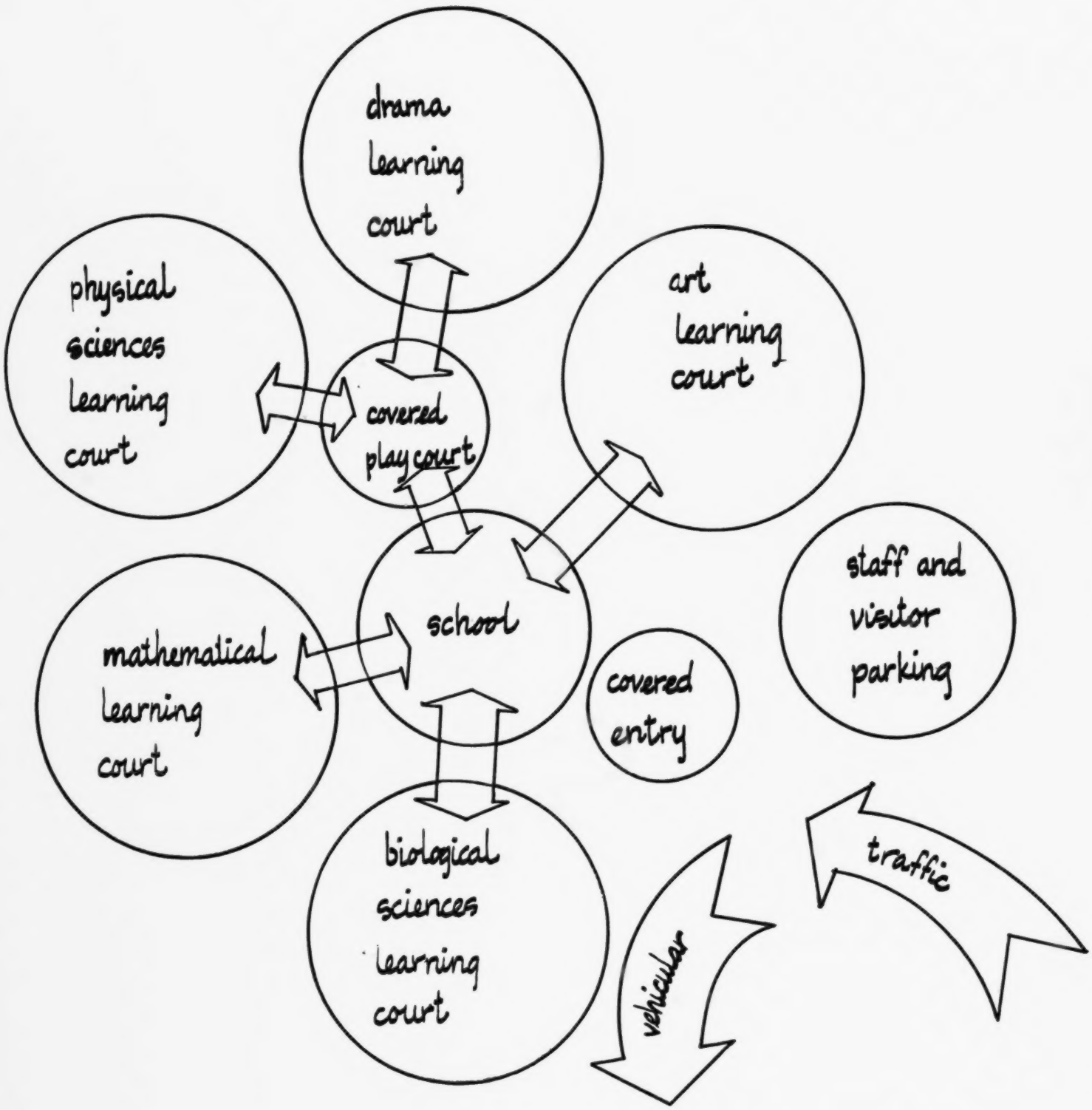

Planning Criteria

1. Provisions must be made for complete separation of children and vehicular traffic.
2. Entry vehicular traffic must be quick, uncomplicated, and above all, safe for children
3. Individual learning courts must be provided in such a manner as to allow the maximum freedom for the children and the minimum number of teacher - supervisors
4. A covered play area must be provided for use in inclement weather.